INCH-POUND

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18 June 1999
SUPERSEDING
MIL-E-1/1508A
20 October 1970

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, RECEIVING

TYPE 6754

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the electron tube described herein shall consist of this document and the latest issue of MIL-PRF-1.

DESCRIPTION: Rectifier, miniature, full wave.
Outline: See figure 1.
Base: E9-1.
Envelope: T6-1/2.
Cathode: Coated unipotential.
Base connections:

Pin No.	1	2	3	4	5	6	7	8	9
Element	2a	nc	2k	h	h	nc	1k	nc	1a

ABSOLUTE RATINGS:

Parameter:	Ef	epx	Epp/a	ib	Io	i(surge)	Rl	Cl	tk	Zp/a	Ehk	TE	Alt
Unit:	V	v	V ac	ma	mA dc	a	Ohms	µF	sec	Ohms	v	°C	ft
Maximum:	6.6	1,450	1/	330	1/	1.10	---	---	45	1/	500	300	1/
Minimum:	6.0	---	---	---	---	---	---	---	---	---	---	---	---
Test conditions:	6.3	---	350 2/	---	---	---	3,890	4	---	---	---	---	---

See footnotes at end of table I.

GENERAL:

First article inspection: Required. 12/

Reliable tube.

TABLE I. Testing and inspection.

Inspection	Method	Conditions	Acceptance level	Inspection level or code	Symbol	Limits		Unit
						Min	Max	
Conformance inspection, part 1 3/								
Heater current	1301		0.65	II	If	0.9	1.1	A
Heater-cathode leakage	1336	Ehk = 500 V dc 5/	0.65	II	Ihk	---	50	µA dc
Operation of rectifiers (1)	1353	4/	0.65	II	Io	95	105	mA dc
Operation of rectifiers (2)	1353	Ef = 5.5 V ac	0.65	II	ΔIo Ef	---	7	mA dc
Emission	1231	Eb = 15 V dc 5/	0.65	II	Is	65	---	mA dc
Short and discontinuity detection	1201		0.4	II	---	---	---	---
Conformance inspection, part 2 3/								
Insulation of electrodes	1211	Ep-all = -1,500 V dc 5/ 6/	2.5	S3	---	---	---	---
Low-frequency vibration	1031	10 G; F = 40 Hz; no voltages	6.5	Code H	---	---	---	---
Shock	1041	500 G; Epp/a = 0	---	---	---	---	---	---
Vibration fatigue	1031	No voltages	6.5	7/	---	---	---	---
Post-shock and vibration-fatigue test end points	---	Heater-cathode leakage Operation of rectifiers(1)	--- ---	--- ---	Ihk Io	--- 85	100 ---	µA dc mA dc
Base strain	1121		---	---	---	---	---	---
Glass strain	2126		2.5	I	---	---	---	---
Permanence of marking	1105		---	---	---	---	---	---

See footnotes at end of table.

TABLE I. Testing and inspection - Continued.

Inspection	Method	Conditions	Acceptance level	Inspection level or code	Zero defectives per characteristic acceptance criteria		Symbol	Limits		Unit
					1st sample	Combined samples		Min	Max	
Conformance inspection, part 3										
Heater-cycling life	1506	Ef = 7.0 V; Ehk = 350 Vac; Eb = 0; 2.5 minutes on; 2.5 minutes off	---	---	---	---	---	3,000	---	Cycles
Heater-cycling life test end point	---	Heater-cathode leakage	---	---	---	---	Ihk	---	100	µA dc
Survival-rate life	1521	TA = room 8/	---	---	---	---	---	---	---	---
Survival-rate life-test end points	---	Short and discontinuity detection	---	---	---	---	---	---	---	---
		Operation of rectifiers (1)	---	---	---	---	Io	95	---	mA dc
Life-test (1) provisions	---	Survival-rate life-test conditions; TE = 300°C; 9/	---	---	---	---	---	---	---	---
Life-test (1) end points (500 hours)	---	Inoperatives	---	---	0	1	---	---	---	---
		Heater current	---	---	0	1	If	0.85	1.15	A
		Operation of rectifiers (1)	---	---	0	1	Io	90	---	mA dc
		Change in operation of rectifiers (1) of individual tubes	---	---	0	1	ΔIot	---	8.0	mA dc
		Heater-cathode leakage	---	---	0	1	Ihk	---	100	µA dc
Life-test (2) provisions	---	Survival-rate life-test conditions	---	10/ 11/	---	---	---	---	---	---
Life-test (2) end points (500 hours)	---	Inoperatives	---	---	0	1	---	---	---	---
		Heater current	---	---	0	1	If	0.85	1.15	A
		Operation of rectifiers (1)	---	---	0	1	Io	90	---	mA dc
		Change in operation of rectifiers (1) of individual tubes	---	---	0	1	ΔIot	---	8.0	mA dc
		Heater-cathode leakage	---	---	0	1	Ihk	---	100	µA dc
Life-test (2) end points (1,000 hours)	---	Inoperatives	---	---	0	1	---	---	---	---
		Heater current	---	---	0	1	If	0.85	1.15	A
		Change in operation of rectifiers (1) of individual tubes	---	---	0	1	ΔIot	---	10.0	mA dc
		Heater-cathode leakage	---	---	0	1	Ihk	---	100	µA dc

See footnotes at top of next page.

TABLE I. Testing and inspection - Continued.

1/ To simplify the application of the maximum ratings to circuit design, absolute maximum ratings are presented in chart form as rating charts I, II, III, and IV. Operating points should be so selected that the boundary limits on rating charts I, II, III, and IV are not exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, and environmental conditions. A brief description of each of the rating charts is given below. The values of ac supply voltage as presented refer to the unloaded supply voltages per anode.

a. Rating chart I (see figure 2). This chart presents the maximum ratings for ac anode supply voltage and dc output current. The boundary FAEDG defines the limits for capacitor-input filter operation and the boundary FABCDG defines the limits for choke-input filter operation.

b. Rating chart II (see figure 3). This chart provides a convenient method for checking conformance with the maximum steady-state peak-anode-current rating. Rating chart II applies to capacitor-input filter operation only.

c. Rating chart III (see figure 4). This chart shows the minimum value of anode-supply resistance (Rs) required to remain within the transient peak-anode-current rating. The value of Rs should be such that it lies to the left of the line on the rating chart at the highest probable value of line voltage. Rating chart III applies to capacitor-input filter operation only.

d. Rating chart IV (see figure 5). This chart presents the maximum ratings for ac anode supply voltage and altitude. Rating chart IV refers to both capacitor-input filter and choke-input filter operation.

2/ All values of Epp/a refer to the unloaded supply voltage. The ratings refer to rectifier operation with sinusoidal supply voltages within the frequency range of 25 to 1,000 Hz.

3/ Sampling procedures shall be with sample size determined by lot size, except the minimum sample size shall be as specified below. Use the acceptance level and inspection level specified for each individual test item to determine the minimum sample size code letter.

Acceptance level	Inspection level	Minimum sample size code
0.4	II	L
0.65	II	L
2.5	I	H
2.5	S3	H

4/ In a full-wave circuit, adjust Zp/a such that a tube having Etd = 15 V dc at 85 mA dc per anode gives Io = 100 mA dc.

5/ Test each section separately.

6/ Heater and cathode tied together and positive with respect to anode.

7/ This test shall be conducted on the initial lot and thereafter on a lot approximately every 6 months. When one lot has passed, the 6-month rule shall apply. In the event of lot failure, the lot shall be rejected and the succeeding lots shall be subjected to this test until a lot has passed. Sample size code letter E, shall apply.

8/ In a full-wave life-test circuit, the values specified for Rl and Cl may be considered as approximate and shall be adjusted initially to give not less than Io = 85 mA dc with ib equal to or greater than 330 ma. Ehk = Eo.

9/ Envelope temperature (TE) requirements, when measured in accordance with the temperature by conduction-band measurement (method 1226), will be satisfied if a tube having bogey Etd (± 10 percent at Is = 46 mA dc per anode) under normal test conditions, is determined to operate at or above minimum specified temperature at any position in the life-test rack.

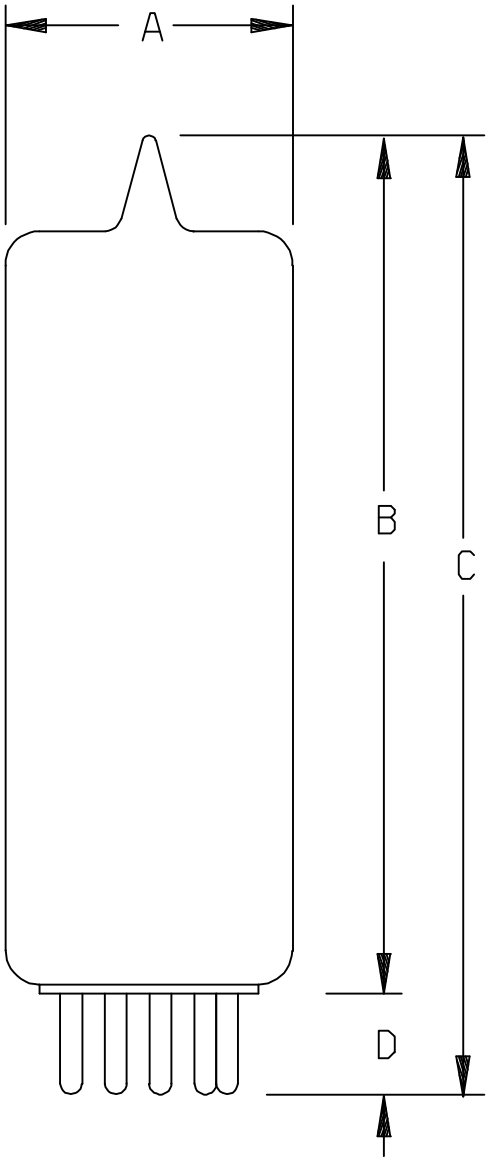
10/ A 20-tube sample shall be selected from a lot at random in such a manner as to be representative of the lot. If such selection results in a sample containing tubes which are outside the initial specification sheet limits for the relevant life-test end-point characteristics, such tubes shall be replaced by randomly selected acceptable tubes.

TABLE I. Testing and inspection - Continued.

11/ In the event of failure of the first sample on life-test (2), select a completely fresh sample of 40 tubes which meet the acceptance inspection limits for those characteristics, specified as life-test (2) end points.

12/ All tests applicable herein, including conformance inspection parts 1, 2, and 3, shall be performed during first article inspection. The number of units to be tested shall be as specified in the contract or order.

13/ Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.



Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
Conformance inspection, part 1				
A	---	.875	---	22.23
B	---	2.500	---	63.50
C	---	2.750	---	69.85
D	.250 NOM		6.35 NOM	

FIGURE 1. Outline drawing of electron tube type 6754.

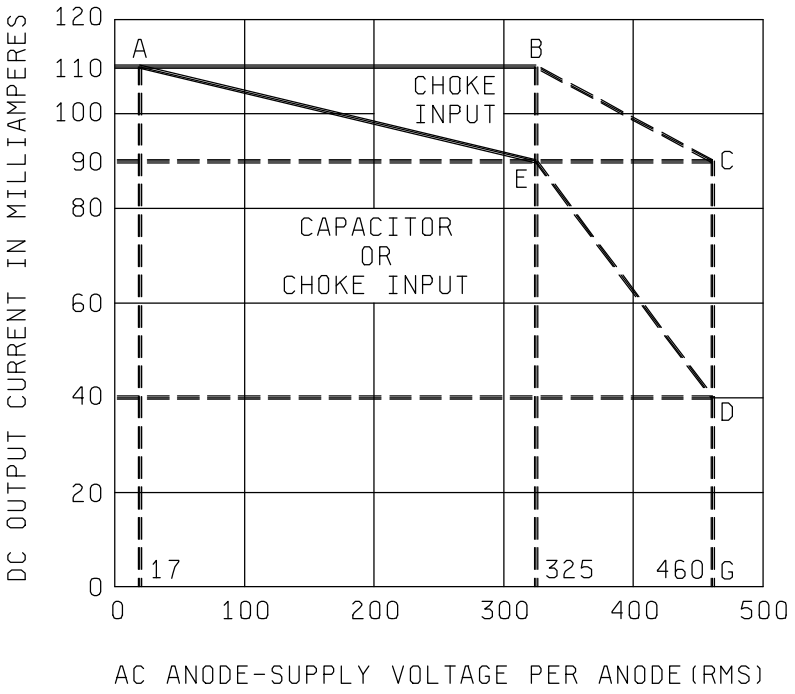


FIGURE 2. Rating chart I absolute maximum ratings.

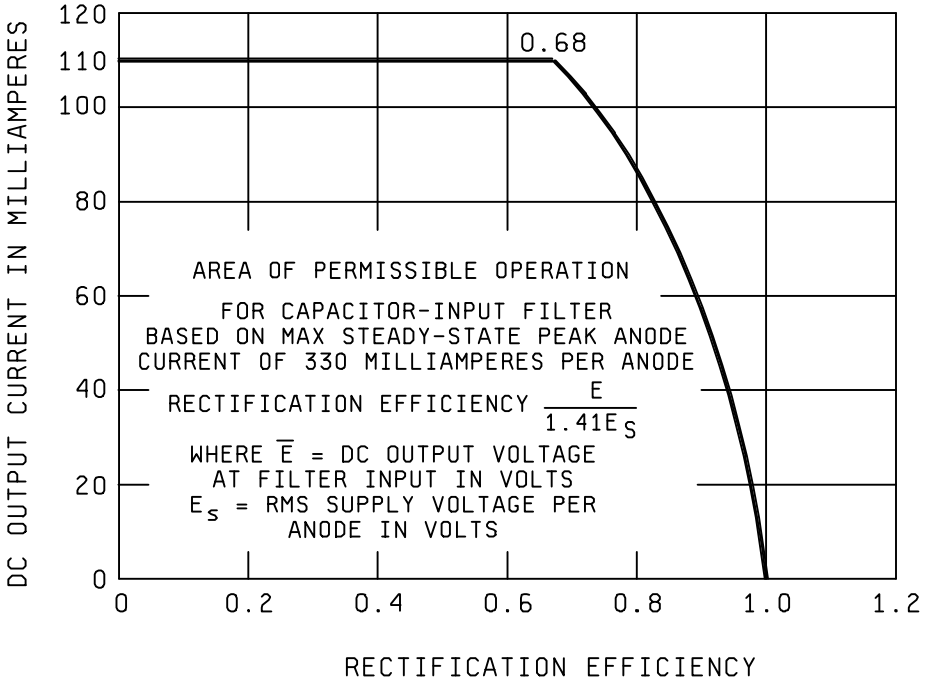


FIGURE 3. Rating chart II absolute maximum ratings.

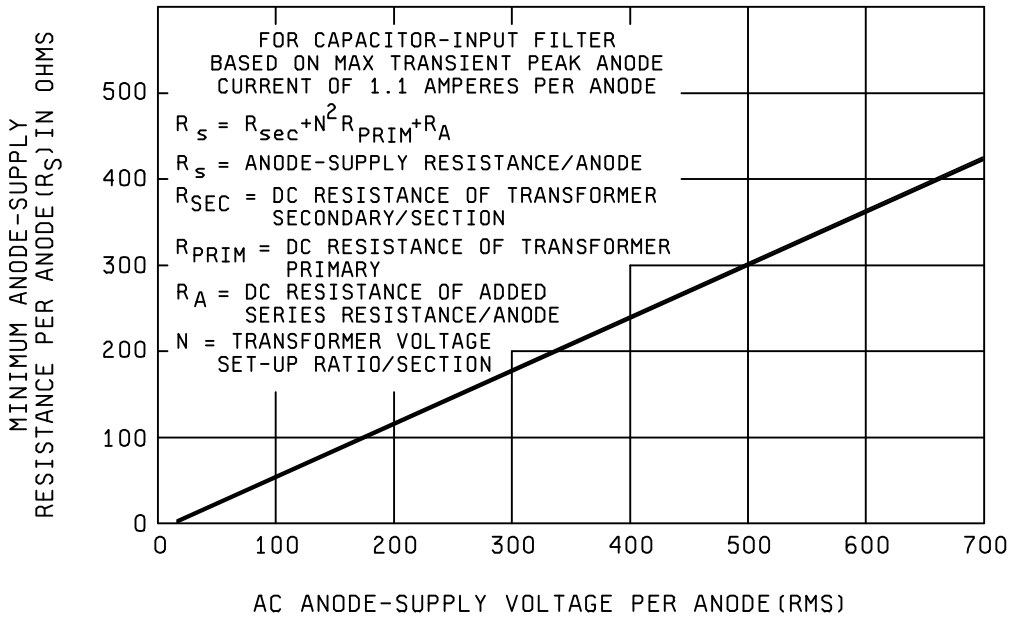


FIGURE 4. Rating chart III absolute maximum ratings.

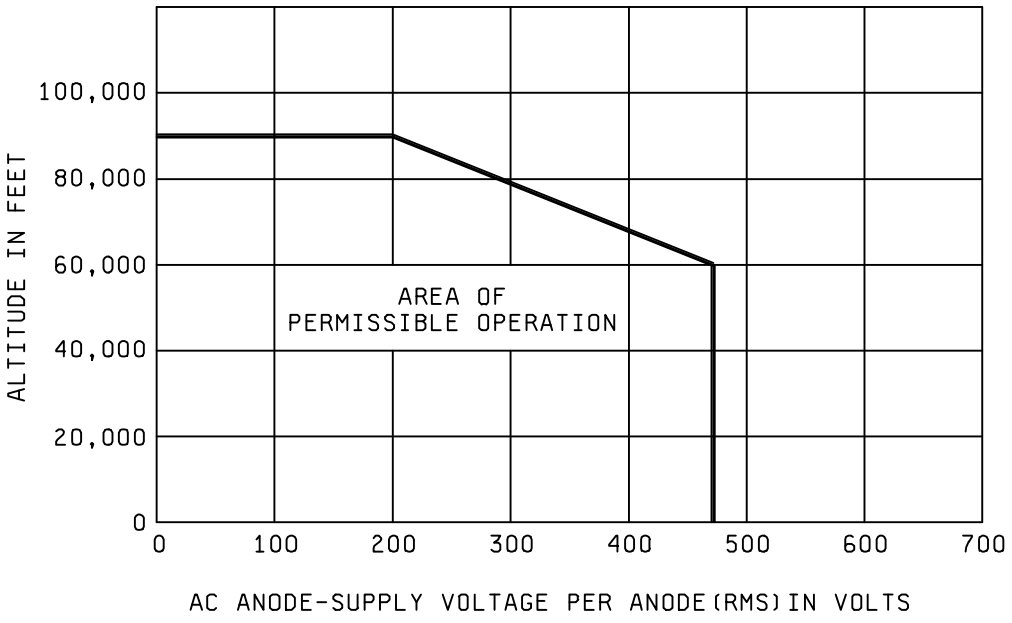


FIGURE 5. Rating chart IV absolute maximum ratings.

Custodian:
Army - CR
Navy - EC
Air Force - 11
DLA - CC

Review activities:
Navy - AS, CG, OS, SH
Air Force - 19

Preparing activity:
DLA - CC

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